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EFFECTIVENESS OF ICT IN DISSEMINATION OF AGRICULTURAL INFORMATION TO SMALLHOLDER FARMERS. A CASE STUDY: KAZAKHSTAN

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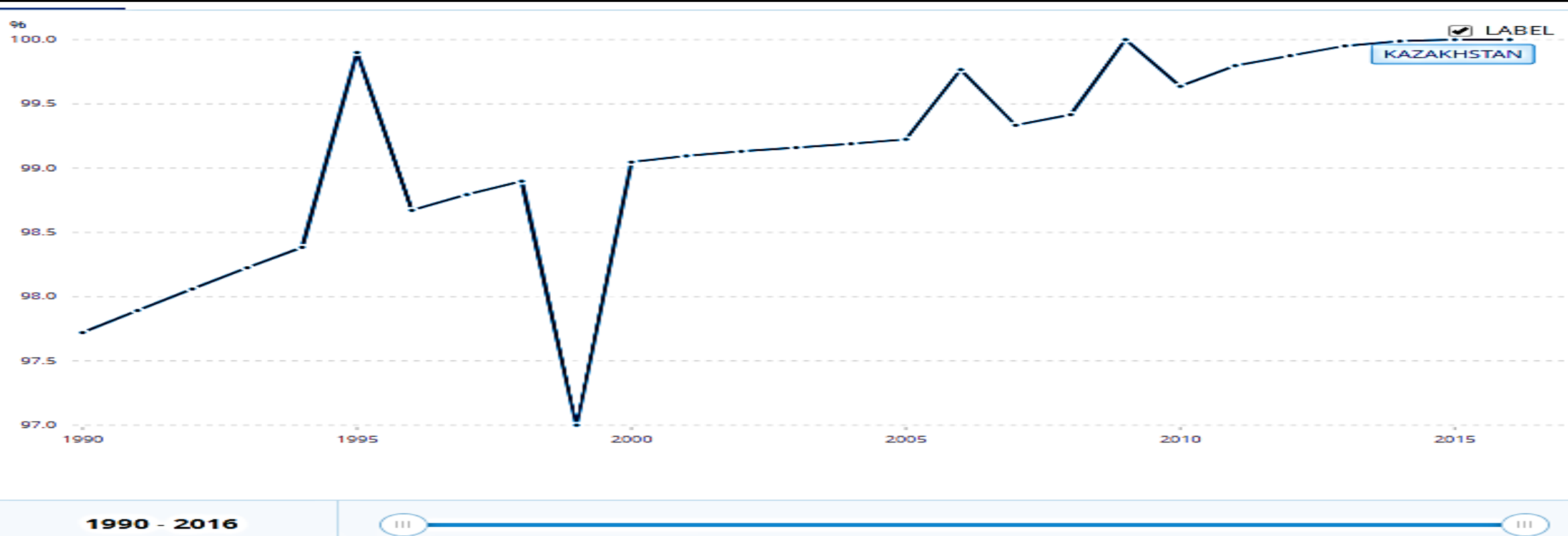
WHICH TECHNOLOGIES COULD MOST POWERFULLY TRANSFORM THE LIVES OF SMALLHOLDER FARMERS?

- ✓ **IMPROVED ACCESS TO ELECTRICITY TO INCREASE EFFICIENCY AND REDUCE FOOD LOSS¹**
- ✓ **INCREASED INTERNET CONNECTIVITY TO ACCESS INFORMATION AND KNOWLEDGE TO IMPROVE PRODUCTIVITY ON THEIR FARMS¹**
- ✓ **MOBILE DEVICES AND PLATFORMS CONNECT SMALLHOLDER FARMERS TO MARKETS¹**
- ✓ **UNIQUE IDENTIFIERS IMPROVE DATA ABOUT FARMERS, FOR FARMERS¹**
- ✓ **GEOSPATIAL ANALYSIS TO HELP FARMERS MAKE INFORMED DECISIONS¹**

FULL ELECTRIFICATION WILL LEAD TO AN INCREASE IN LABOR PRODUCTIVITY, AN INCREASE IN THE TECHNICAL EQUIPMENT OF AGRICULTURE, WHICH WILL MAKE IT POSSIBLE TO TURN AGRICULTURAL LABOR INTO A KIND OF INDUSTRIAL LABOR AND SERVE AS ONE OF THE MEANS FOR OVERCOMING THE SIGNIFICANT DIFFERENCES BETWEEN TOWN AND COUNTRY.



ACCESS TO ELECTRICITY (% OF POPULATION) IN KAZAKHSTAN

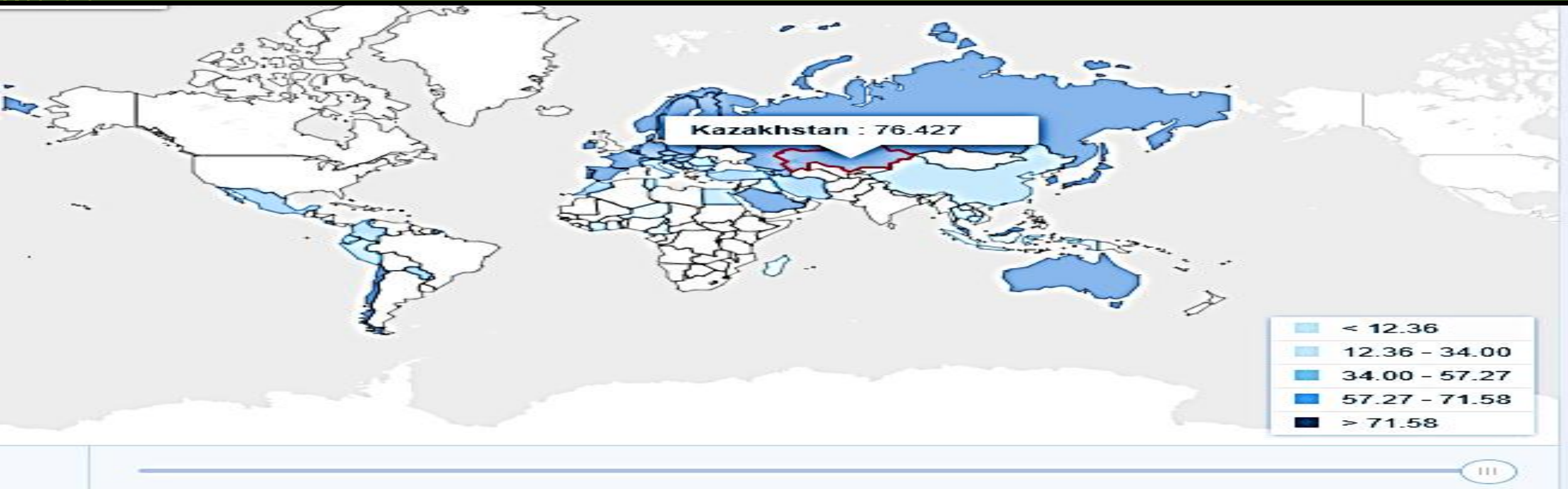


Source: World Bank Sustainable Energy for All (SE4ALL) database from the SE4ALL Global Tracking Framework led jointly by the World Bank, International Energy Agency, and the Energy Sector Management Assistance Program. 2016

SMALLHOLDER FARMERS COULD ACCESS INFORMATION AND KNOWLEDGE-RELATED TO WEATHER, RAINFALL OR MARKET DEMAND, ALLOWING THEM TO GROW AND HARVEST FOOD MORE EFFICIENTLY¹



INDIVIDUALS USING THE INTERNET (% OF POPULATION) IN KAZAKHSTAN

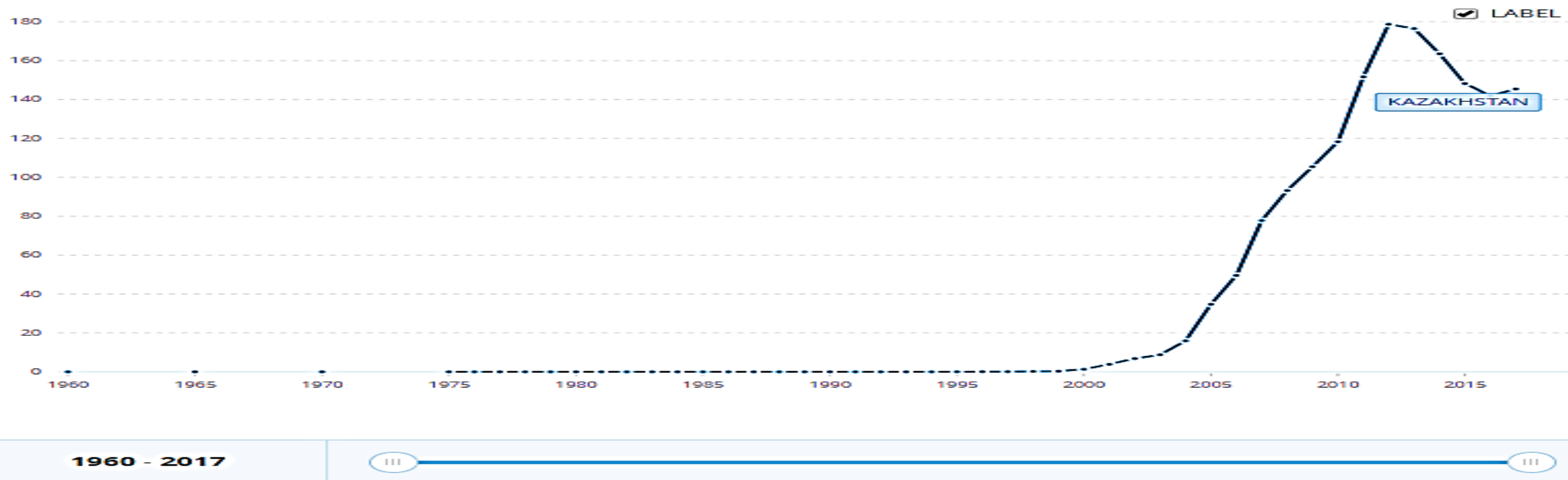


Source: World Bank, International Telecommunication Union, World Telecommunication/ICT Development Report and database. 2017


A LARGE NUMBER OF CONSUMERS OF MOBILE PHONES, VARIOUS GADGETS, TABLETS, SOFTWARE FOR COMPUTERS AND THE INTERNET ARE CONSIDERED AS CONVENIENT MEANS FOR COMMUNICATION, GETTING THE NECESSARY INFORMATION AND ENTERTAINMENT. USING MOBILE TECHNOLOGIES IN THESE CASES, PEOPLE DO NOT EVEN THINK ABOUT HOW MUCH MORE WIDELY THEIR OPPORTUNITIES ARE USED AND AFFECT EVERYDAY LIFE.



MOBILE CELLULAR SUBSCRIPTIONS (PER 100 PEOPLE) IN KAZAKHSTAN

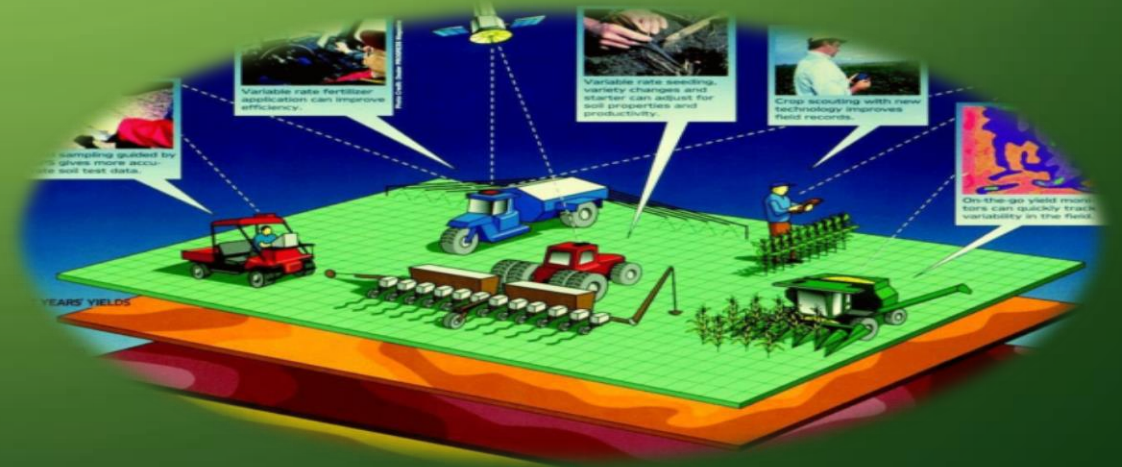


Source: World Bank, International Telecommunication Union, World Telecommunication/ICT Development Report and database. 2017

The background is a solid green color. In the four corners, there are decorative white line art elements that resemble circuit boards or neural network connections. These elements consist of thin white lines that branch out and terminate in small white circles, creating a symmetrical, geometric pattern in each corner.

Unique identifiers, along with satellite imaging technology, would allow us to collect data about farmers: where they live, how much land they cultivate, what they grow, what inputs they use, how much they yield, what they eat and what they sell, and what price they fetch. This revolution of information could remake the agricultural sector at every level, from individual farmers to global institutions².

IF SMALLHOLDER FARMERS HAD ACCESS TO FOUNDATIONAL TECHNOLOGIES – LIKE ELECTRICITY, THE INTERNET AND MOBILE PHONES – THEN THEY TOO COULD USE GEOSPATIAL ANALYSIS TO MAKE DECISIONS ABOUT THE MANAGEMENT OF THEIR FARMS AND OTHER ASSETS¹. GEOSPATIAL TECHNOLOGY CANNOT BE SUCCESSFUL IF THE CORRECT DATA IS NOT COLLECTED AND ANALYZED EFFECTIVELY. TO ACHIEVE THIS, SEVERAL TECHNIQUES HAVE BEEN ADVANCED MOST OF WHICH ARE BASED ON REMOTE SENSING. REMOTE SENSING IS ESSENTIAL IN DIVIDING A LARGE FARM INTO MANAGEMENT ZONES³.



CONCLUSION

Of 570 million farms worldwide, 475 million are smallholdings of fewer than two hectares. By 2030, nearly 60% of the world's population will live in urban areas, changing the shape of consumer demand and increasing pressure on land and other resources. Approximately 500 million smallholder farmers produce 80% of the food consumed in the developing world. Fourth Industrial Revolution (4IR) technologies are making it easier to dismantle some of them. Taken together, these innovative technologies lower cost to scale, accelerate innovation, increase transparency in food systems in small farms.

REFERENCES:

1) ISHMAEL SUNGA, CHIEF EXECUTIVE OFFICER, SOUTHERN AFRICAN CONFEDERATION OF AGRICULTURAL UNIONS (SACAU). THESE 5 INNOVATIONS WILL TRANSFORM THE LIVES OF SMALLHOLDER FARMERS

2) SAM DRYDEN, A SENIOR FELLOW AT IMPERIAL COLLEGE LONDON AND THE FORMER DIRECTOR OF AGRICULTURAL DEVELOPMENT FOR THE BILL & MELINDA GATES FOUNDATION. WHAT'S UNIQUE ABOUT UNIQUE IDS DELIVERING ON THE PROMISE OF DIGITAL SOLUTIONS FOR SMALLHOLDERS

3) GRISSO, B. (2009). PRECISION FARMING: A COMPREHENSIVE APPROACH. RETRIEVED ON 1ST OCTOBER 2012 FROM [HTTP://PUBS.EXT.VT.EDU/442/442-500/442-500.HTML](http://pubs.ext.vt.edu/442/442-500/442-500.html)

The image features a dark green background with a subtle gradient. In the four corners, there are decorative elements resembling circuit board traces or neural network connections, consisting of thin white lines and small circles.

**THANK YOU FOR
YOUR ATTENTION!**